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APPLICATION OF LANDSAT IMAGERY IN LAND USE INVENTORY  
AND CLASSIFICATION IN NEBRASKA

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Type II Report for Period June 10, 1975 to September 10, 1975

Prepared for

GODDARD SPACE FLIGHT CENTER

Greenbelt, Maryland 20771

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16. Abstract Procedures have been established and personnel assigned for handling and interpretation of LANDSAT and aircraft data. LANDSAT and initial aircraft data have been received for test sites. Further ground truth will be obtained to clarify interpretation of aircraft photography.			
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Figure 2. Technical Report Standard Title Page

## PREFACE

This report covers the contract period June 10, 1975 to September 10, 1975 for the investigation evaluating the application of LANDSAT imagery in land use inventory and classification in Nebraska (Marvin P. Carlson, Principal Investigator, NAS5-20814).

During this reporting period procedures within the Remote Sensing Center were established for receipt, indexing and filing of imagery received. Appropriate personnel were assigned the various tasks associated with the handling of the incoming imagery. The co-investigators met to assess progress and explore applications.

LANDSAT imagery of usable quality is being received for the test areas. Color infrared aerial photography has also been received for the May 16, 1975 flight. Photographic quality was excellent. There is some question as to whether the fall flights for aerial photography will be carried out, due to aircraft availability.

Further ground truth collection trips are being planned, utilizing spring flight aerial photography to confirm earlier field identifications and to collect further data on areas which appear atypical.

## MAIN TEXT

- A. Problems It is highly desirable that a portion of ground truth collection trips have, as supporting material, the high altitude aircraft photography of the test sites.

The time frame of delivery experienced for the photography of the May 16, 1975 mission would not have allowed our having the photography for the later ground truth collection trips. Microfilms and other flight data necessary to order site photography were not received until 12 weeks after the flight was completed. An additional three weeks after the order was placed is normally expected as delivery time. This would result in delivery of spring photography too late to be used during the field trips for ground truth collection during the current growing season. Further, it would delay land use interpretation an additional 15 weeks beyond the fall flight, as both flights are necessary for land use interpretation.

We have been informed by Tom Barrow in a telephone conversation from Houston that they are experiencing aircraft problems. These problems make it questionable as to whether the fall photography for the test sites will be acquired within the required time frame. Should the fall photography not be acquired, it will be necessary to re-fly the sites for both spring and fall in 1976 or completion of first phase objectives cannot be achieved.

- B. Accomplishments The system of indexing and filing of LANDSAT and aircraft data designed for the Remote Sensing Center has functioned effectively. A computerized listing of available imagery, periodically updated, is available for initial browsing purposes.

The May 16, 1975 color infrared aerial photography has been received for the test sites. The photography has

been indexed and filed. Previously collected ground truth data has been overlaid onto the photography and evaluated for any apparent interpretation problems. Further ground truth collection trips are being planned, based on any apparent interpretation problem areas.

Personnel have been assigned the various tasks of imagery and photography receipt, indexing and filing. Interpreters have been assigned and are familiarizing themselves with ground truth data and relating this to the spring flight photography.

Accomplishments for the next reporting period will include continued evaluation of LANDSAT data and aerial photography. Upon receipt of the fall flight photography, level 2 land use interpretation will begin. Evaluation of LANDSAT imagery will be made to determine if suitable imagery exists to warrant consideration of proceeding with ordering of computer compatible tapes of the study areas.

A briefing session and work shop on the acquired imagery will be presented for selected staff of a co-investigating agency (Nebraska Department of Roads) to anticipate additional potential applications.

- C. Significant Results No significant results were obtained during this reporting period.
- D. Publications No publications resulted from the project during this reporting period.
- E. Recommendations It is recommended that investigation be made into the possibility of expediting the procedures for processing and making available to the user the high

altitude aircraft photography.

F. Funds Expended During the reporting period \$4463 were expended for salaries and \$1090 for support.

G. Data Use As of August 28, 1975 account status was as follows:

<u>Account</u>	<u>Budgeted</u>	<u>Spent</u>	<u>Balance</u>
Landsat	\$7,700	\$1,325	\$6,375
CCT	\$4,000	-----	\$4,000
Aircraft	\$3,744	\$1,188	\$2,556

H. Aircraft Data High altitude aircraft color infrared positive transparencies were received for the Upper Niobrara-White and Lower Niobrara Natural Resource Districts. The flight was made May 16, 1975. Photographic quality was excellent. Ground truth data was related to field patterns and land use classification will begin as soon as the fall flight data is received.